

DIGITALLY MARKED OBJECTS AND PROMOTIONAL METHODS

Related Application Data

This application is a continuation-in-part of copending application 09/343,104,
5 filed June 29, 1999.

Field of the Invention

The present invention relates to using digitally marked objects (e.g., watermarked
or bar-coded objects) in conjunction with promotional campaigns (e.g., issuing coupons
10 and premiums).

Background and Summary of the Invention

As disclosed in the parent application, physical objects can be encoded with
digital data. When sensed by a compliant device, the digital data can be used to direct a
15 web browser to an internet web page corresponding to the object.

One such system marks the objects in a generally human-imperceptible manner
using digital watermark technology. For example, a photograph in a magazine
advertisement can be subtly changed, in local luminance detail, to encode a 32 bit number
(an object identifier). Image data corresponding to the photograph can be sensed by a
20 web cam or the like, and processed by an associated computing device to decode the 32
bit object identifier. This identifier can then be transmitted, by the device, to a remote
database. The database uses the identifier to access a corresponding database record. In
the record is information relating to the object, including the URL or an associated web
page. The database transmits this URL address back to the device. The device, in turn,
25 launches a web browser (or if already launched, then directs the running web browser) to
the specified URL. The web page at that URL is then displayed to the user who initially
presented the object to the web cam. Such arrangements are further detailed in the cited
parent application.

A great variety of particular watermarking techniques are known to artisans in the
30 field. One particular technique is shown in application 09/503,881, filed February 14,
2000.

In accordance with one aspect of the present invention, a coffee cup, or a coffee cup jacket, is encoded with digital data. A reader terminal in a coffee shop senses the data and responds in a manner specified by information in the associated database record. Instead of directing a web browser to an associated web page, the information returned
5 by the database can be used, e.g., to issue the consumer a premium, such as a coupon good for merchandise in the store. The cups can be produced in large volume – all encoded with the same digital data. The response to this fixed data can be changed daily, weekly, etc., by updating data in the database accordingly. Thus, an inventory of cups produced months ago can be used in conjunction with promotion of products newly
10 arrived at the store. Moreover, the digital data can trigger different responses when sensed at different locations (e.g., store, office).

The foregoing and additional features and objects of the invention will be more readily apparent from the following detailed description.

Detailed Description

As noted, a coffee shop distributes coffee in cups (or in jacketed cups) encoded with digital object identifiers. The shop is equipped with a reader terminal to which the cup can be presented. The reader terminal may be at the counter having cream, sugar, etc. The counter may be arranged to encourage the consumer to place the cup at a
15 location that is optimized for reading with a fixed web cam.

When the digital object identifier on the cup is sensed by the reader terminal, it is dispatched to a database, which may be in the store or remote. The database accesses a data record corresponding to that identifier. Stored in the data record is information specifying the response that should be provided. The response can be display of a
20 corresponding HTML document (e.g., by directing the terminal to load a corresponding web page). But in one particular embodiment, the response is to print a coupon.

The coupon may be printed with a label printer, or other small footprint device. The printer may use blank paper stock, or paper stock with a pre-printed border, background, etc. The text to be printed on the paper can be stored in the database record
25 corresponding to the identifier. The database can relay this text to the terminal for printing. (Other arrangements are, of course, possible. For example, the database can
30

simply store a number that identifies a text message stored in the terminal at a corresponding address, etc.) Thus, by placing the coffee cup within view of the terminal, the customer is issued a coupon.

One feature of this arrangement is that the response can be tailored by changing the information stored in the database record, rather than changing the identifier with which the cup is encoded. So cups/jackets can be printed in large volumes – all with the same identifier. One week the terminal may respond to such cups by issuing a coupon good for Thanksgiving merchandise. The next week the terminal may respond by issuing coupons good for Christmas merchandise, etc. The next week a product newly introduced by the store may be promoted, etc.

Instead of issuing cents-off coupons, the terminal may award prize coupons. In some systems, cents-off coupons may generally be awarded, but prize coupons may be randomly issued.

When the customer leaves the store and takes the cup down the street, other stores may have similar terminals. Presenting the cup to other merchants' terminals can yield different coupons or prizes. That is, the response triggered by a cup can be context-dependent. The same object identifier is sensed by all terminals, but the databases consulted may be different, or information about the location/context of the terminal is relayed to a shared database, permitting the terminals – and corresponding responses – to be differentiated. Thus, presenting the cup at the coffee store may result in award of a coupon for a free daily newspaper, and presenting the cup to the bagel shop down the street may result in award of a coupon for a free spread on a purchased bagel.

If the cup is taken to the purchaser's home or office, and presented to a web cam-equipped computer with suitable software (e.g., the present assignee's Digimarc MediaBridge software), still further coupons/incentives may be provided.

Prizes may be awarded upon visiting a specified circuit of locations. Showing a coffee cup to each of the Starbucks stores in a city may result in award of a \$20 gift certificate when the last one is visited.

The objects marked, of course, needn't be coffee cups/jackets. Any object can be employed. Even clothing can be utilized. A Habitat for Humanity t-shirt may be encoded with digital data. If shown to a terminal at Starbucks, a first type of premium

may be awarded. If shown to a terminal at Mrs. Fields' Cookies, a second type of premium may be awarded.

Instead of awarding physical tokens (e.g., coupons) or presenting corresponding web pages, the terminals can respond otherwise. For example, the terminal can add
5 "points" to different accounts (e.g., frequent flier accounts). Terminals can be provided at tourist destinations, airports, etc. Users who present encoded objects (e.g., American Express cards, frequent flier membership cards, etc.) can be awarded points. Premiums may be issued not just when point tallies cross predetermined thresholds (e.g., 25000 miles for a free roundtrip airfare), but also when other metrics are reached. For example,
10 a user who presents his Amex card to terminals in all 50 states may be awarded a premium such as a round trip ticket to Europe.

The response of the terminal needn't be a premium; it can be informational. A purchaser of an espresso machine at a coffee shop may present the box to a terminal. The terminal may respond by printing information associated with the product – so the
15 consumer does not need to rely on printed materials inside the box that may be out of

date.

pat 21 Objects needn't be marked with just one identifier. A product box may have a different identifier encoded on each of its six faces. A card, such as an American Express card, may have one identifier encoded on the front face, and a different identifier encoded
20 on the reverse. Each face triggers a different response. Or two or more watermarks may occupy the same region of an object. The marks may be recognized by different systems, and may trigger different responses. The marks may serve different purposes, e.g., one to distinguish counterfeits from originals, another as part of a promotional campaign. (The use of watermarks to distinguish originals from counterfeits is disclosed in application
25 09/498,223, filed February 3, 2000.)

Further concerning some of the concepts detailed in the parent application, blow-in cards found in magazines and the like (e.g., subscription cards) can be encoded with object identifiers. When presented to a computer running Digimarc MediaBridge software, the computer can pass the object identifier to the remote database. The remote
30 database can respond by presenting a template on the user's screen, with information such as name, address, etc., already filled-in using user profile information stored in the

user's computer. This information can be reviewed by the user for accuracy, and then dispatched with a single mouse-click. Such arrangements are widely applicable beyond the particular context of blow-in cards (and can naturally be varied in numerous implementation details).

5 To provide a comprehensive disclosure without unduly lengthening this specification, applicants incorporate by reference the cited patent applications.

Having described and illustrated the principles of the invention with reference to illustrative embodiments, it should be recognized that the invention is not so limited.

For example, while the detailed embodiments employed digital watermarking,
10 other machine-readable data representations can be used instead (e.g., bar codes, glyphs, RF IDs, mag stripes, smart card technology, etc.).

The reference to internet terminals in the foregoing discussion should not be taken as limiting applicability of the invention to any particular form of hardware (e.g., desktop computers or kiosks). Any internet-enabled device or appliance can utilize the principles
15 detailed herein, including cell phones and other wireless devices, personal digital assistants, web-enabled entertainment appliances, etc., etc. Moreover, while full-time internet access by such devices is preferred, the same principles can be employed in other applications, e.g., in which product identifiers are cached when internet access is not available, and utilized (e.g., sent) when access is thereafter provided.

20 The implementation of the functionality described above (including watermark decoding) is straightforward to artisans in the field, and thus not further belabored here. Conventionally, such technology is implemented by suitable software, stored in long term memory (e.g., disk, ROM, etc.), and transferred to temporary memory (e.g., RAM) for execution on an associated CPU. In other implementations, the functionality can be
25 achieved by dedicated hardware, or by a combination of hardware and software. Reprogrammable logic, including FPGAs, can advantageously be employed in certain implementations.

It should be recognized that the particular combinations of elements and features in the above-detailed embodiments are exemplary only; the interchanging and
30 substitution of these teachings with other teachings in this and the incorporated-by-reference patents/applications are also contemplated.

In view of the wide variety of embodiments to which the principles and features discussed above can be applied, it should be apparent that the detailed embodiments are illustrative only and should not be taken as limiting the scope of the invention. Rather, we claim as our invention all such modifications as may come within the scope and spirit of the following claims and equivalents thereof.